

Fig. 1

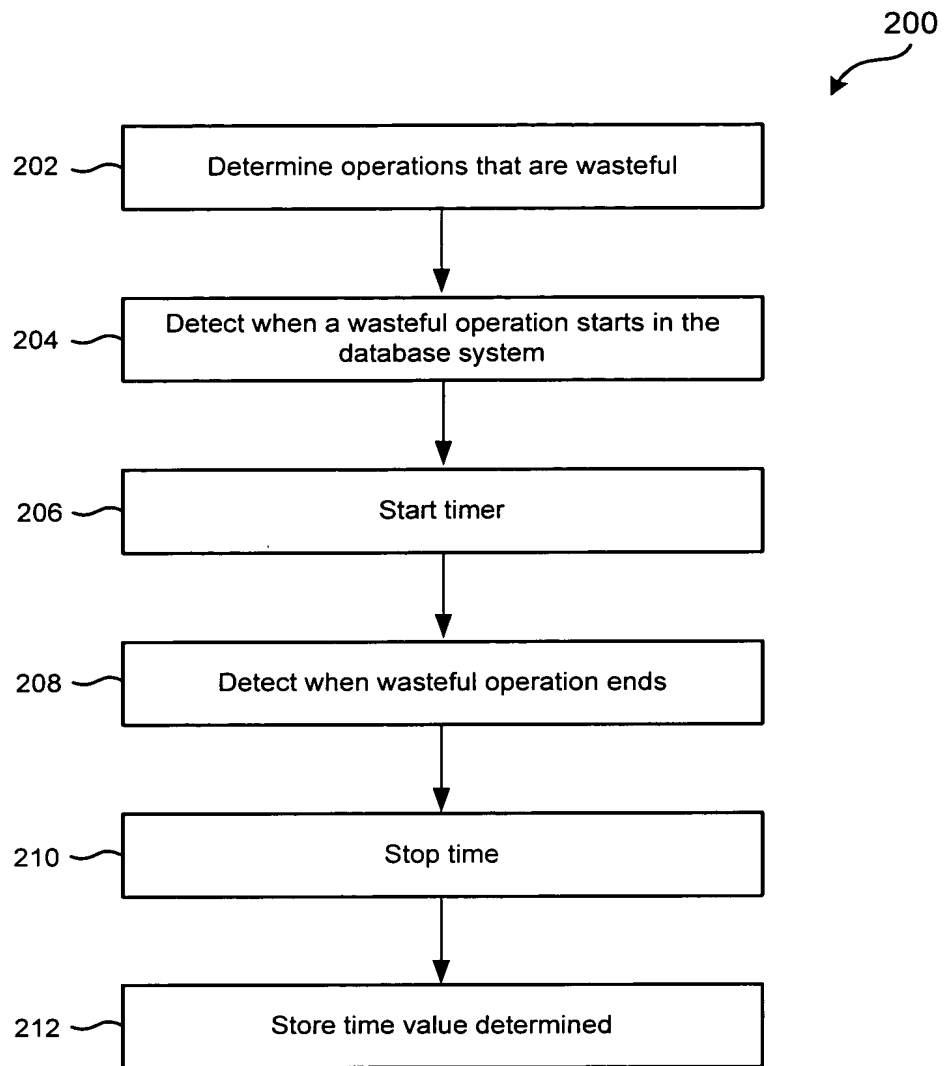


Fig. 2

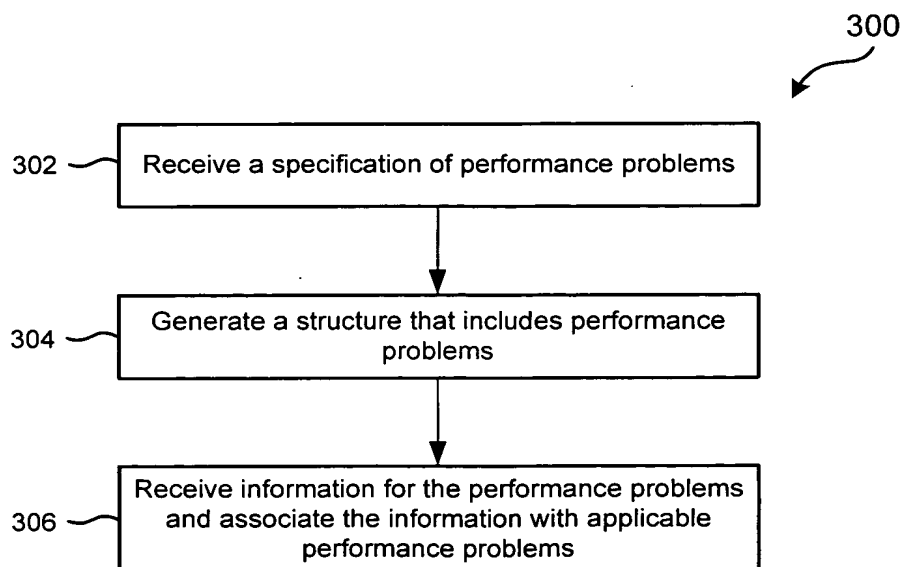


Fig. 3

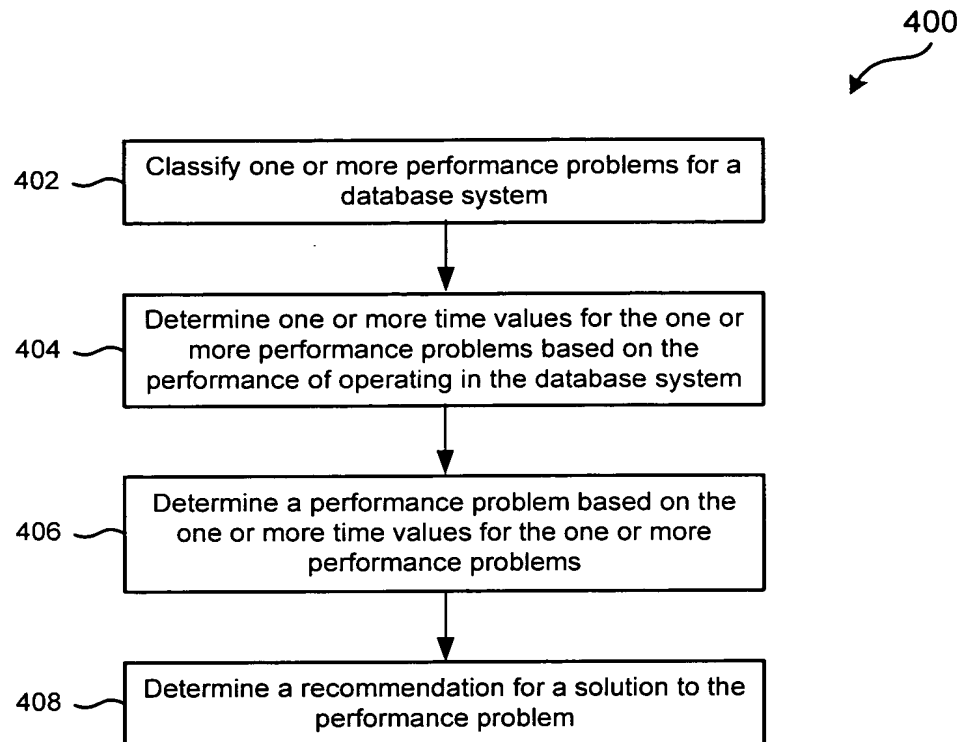


Fig. 4

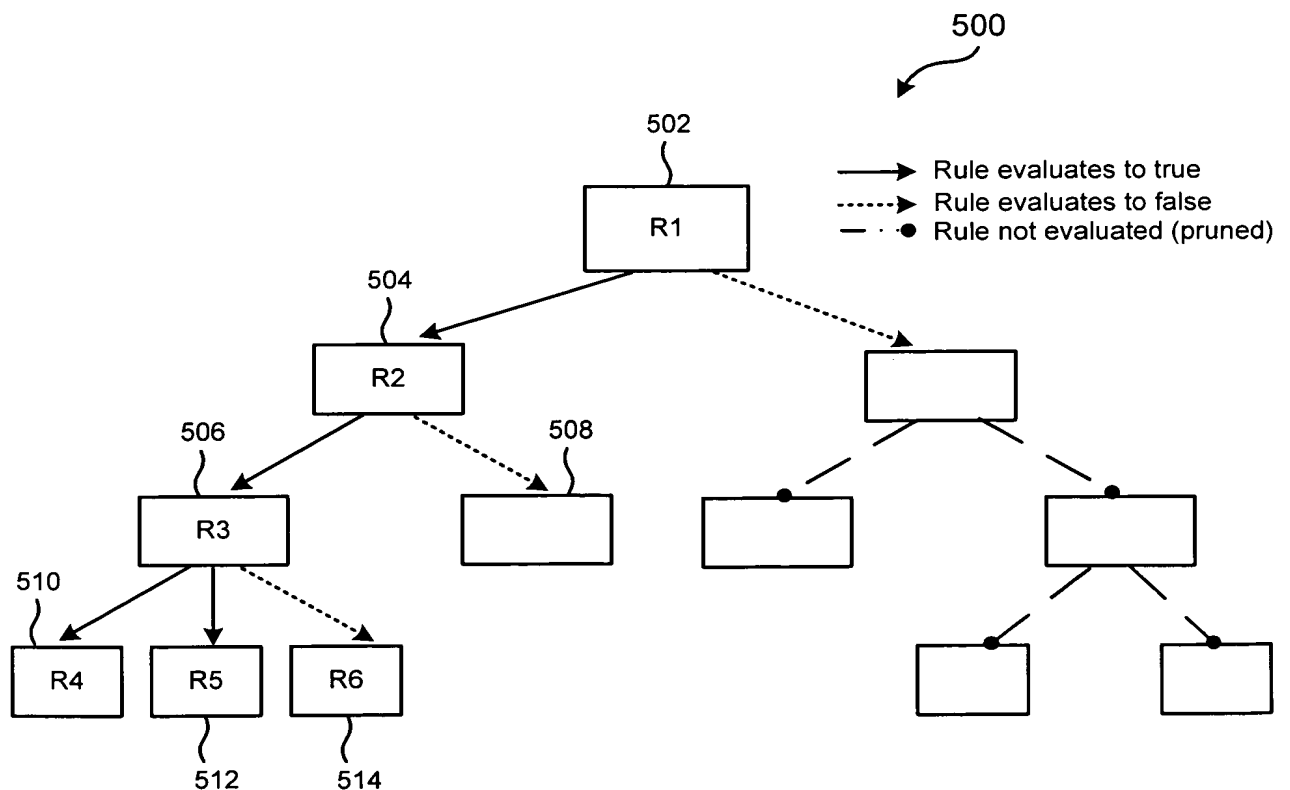


Fig. 5

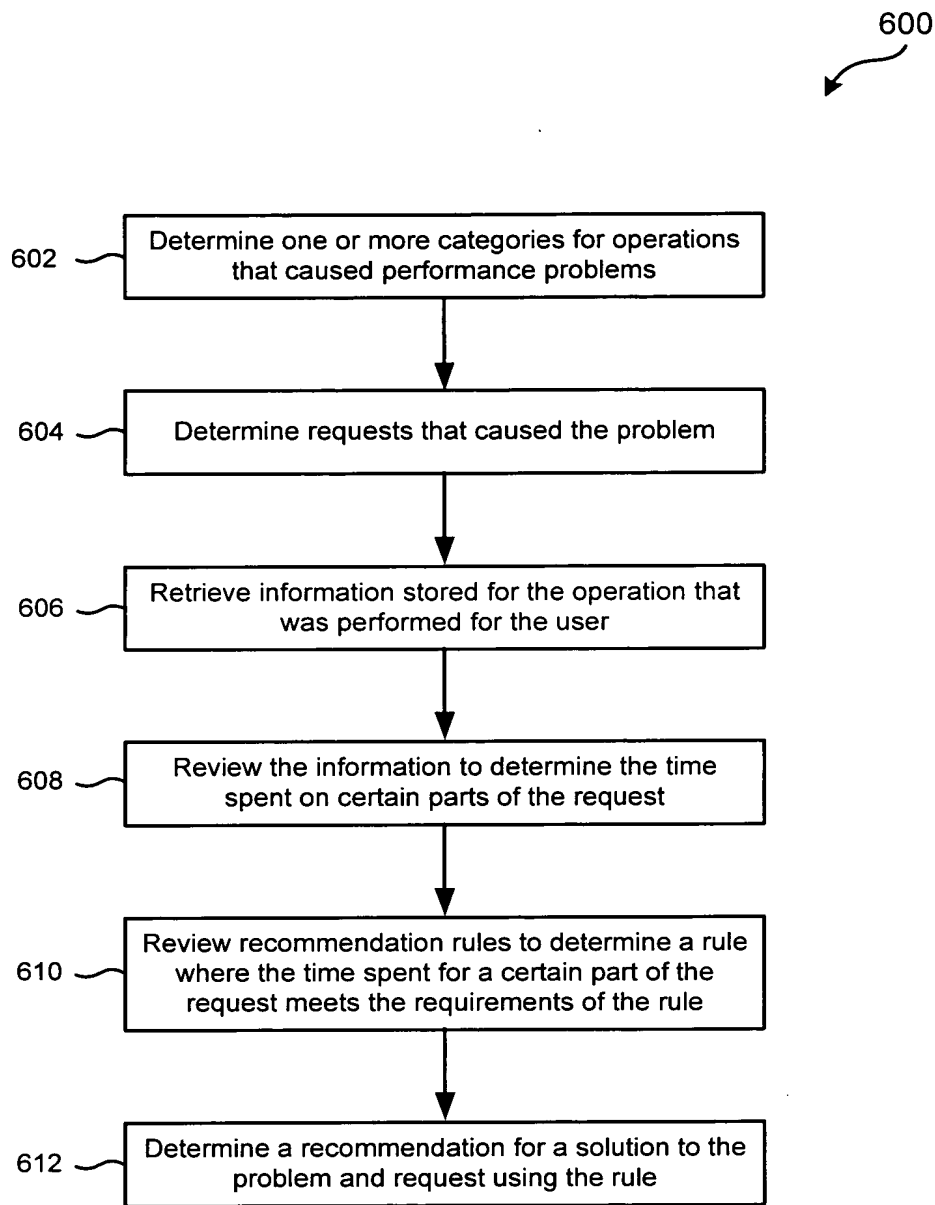


Fig. 6

Example 2: ADDM report

```

DEMS_ADVISOR.GET_TASK_REPORT('BB')
-----
      DETAILED ADDM REPORT FOR TASK 'bb' WITH ID 16
-----

      Analysis Period: 30-MAY-2003 from 10:27:57 to 10:31:03
      Database ID/Instance: 1/1
      Snapshot Range: from 9 to 10
      Database Time: 1582 seconds
      Average Database Load: 8.5 active sessions
-----
702-1 704-1
FINDING 1: 13% impact (201 seconds)
-----
A hot data block with concurrent read and write activity was found. The block
belongs to segment "RWBOLTON.TAB_BBW_DATABLOCK_I" and is block 70 in file 3.

706-1 RECOMMENDATION 1: Application Analysis, 13% benefit (201 seconds)
707-1 ACTION: Investigate application logic to find the cause of high
      concurrent read and write activity to the data present in this block.
      RELEVANT OBJECT: database block with object# 40984, file# 3 and
      block# 70
708-1 { RATIONALE: The SQL statement with SQL_ID "4vxy8fv4y3dhd" spent
      significant time on "buffer busy waits" for the hot block.
      RELEVANT OBJECT: SQL statement with SQL_ID 4vxy8fv4y3dhd
      UPDATE TAB_BBW_DATABLOCK SET REC_ID = :B3+:B2+1 WHERE REC_ID = :B1
      RATIONALE: The SQL statement with SQL_ID "90n4zy8h6375p" spent
      significant time on "buffer busy waits" for the hot block.
      RELEVANT OBJECT: SQL statement with SQL_ID 90n4zy8h6375p
      UPDATE TAB_BBW_DATABLOCK SET REC_ID = :B3 WHERE REC_ID = :B2+:B1+1

710-1 SYMPTOMS THAT LED TO THE FINDING:
      Wait class "Concurrency" was consuming significant database time. (24%
704-2 impact [375 seconds])
702-2 FINDING 2: 13% impact (201 seconds)
-----
Read and write contention on database blocks was consuming significant
database time.

706-2 RECOMMENDATION 1: Schema, 13% benefit (201 seconds)
707-2 ACTION: Consider hash partitioning the INDEX
      "RWBOLTON.TAB_BBW_DATABLOCK_I" with object id 40984 in a manner that
      will evenly distribute concurrent DML across multiple partitions.
      RELEVANT OBJECT: database object with id 40984
708-2 { RATIONALE: The UPDATE statement with SQL_ID "4vxy8fv4y3dhd" was
      significantly affected by "buffer busy waits".
      RELEVANT OBJECT: SQL statement with SQL_ID 4vxy8fv4y3dhd
      UPDATE TAB_BBW_DATABLOCK SET REC_ID = :B3+:B2+1 WHERE REC_ID = :B1
      RATIONALE: The UPDATE statement with SQL_ID "90n4zy8h6375p" was
      significantly affected by "buffer busy waits".
      RELEVANT OBJECT: SQL statement with SQL_ID 90n4zy8h6375p
      UPDATE TAB_BBW_DATABLOCK SET REC_ID = :B3 WHERE REC_ID = :B2+:B1+1

710-2 SYMPTOMS THAT LED TO THE FINDING:
      Wait class "Concurrency" was consuming significant database time. (24%
      impact [375 seconds])

```

Fig. 7A

Example 2: ADDM report (continued)

704-3

702-3

FINDING 3: 9.5% impact (149 seconds)

Contention on buffer cache latches was consuming significant database time.

706-3

RECOMMENDATION 1: SQL Tuning, 4.3% benefit (68 seconds)

707-3

ACTION: Run SQL Tuning Advisor on the SQL statement with SQL_ID
"4vxy8fv4y3dhhd".
RELEVANT OBJECT: SQL statement with SQL_ID 4vxy8fv4y3dhhd
UPDATE TAB_BBW_DATABLOCK SET REC_ID = :B3+:B2+1 WHERE REC_ID = :B1

706-3

RECOMMENDATION 2: SQL Tuning, 4.3% benefit (68 seconds)

707-3

ACTION: Run SQL Tuning Advisor on the SQL statement with SQL_ID
"90n4zy8h6375p".
RELEVANT OBJECT: SQL statement with SQL_ID 90n4zy8h6375p
UPDATE TAB_BBW_DATABLOCK SET REC_ID = :B3 WHERE REC_ID = :B2+:B1+1

710-3

SYMPTOMS THAT LED TO THE FINDING:

Wait class "Concurrency" was consuming significant database time. (24%
impact [375 seconds])

704-4

702-4

FINDING 4: 3.5% impact (56 seconds)

Hard parsing of SQL statements was consuming significant database time.

706-4

NO RECOMMENDATIONS AVAILABLE

ADDITIONAL INFORMATION: Hard parses due to cursor environment mismatch were
not consuming significant database time.
Hard parsing SQL statements that encountered parse errors was not
consuming significant database time.
The shared pool was adequately sized to prevent hard parses due to
cursor aging.
Hard parses due to literal usage and cursor invalidation were not
consuming significant database time.

710-4

SYMPTOMS THAT LED TO THE FINDING:

Parsing of SQL statements was consuming significant database time. (3.7%
impact [59 seconds])

712

ADDITIONAL INFORMATION

An explanation of the terminology used in this report is available when you
run the report with the 'ALL' level of detail.

The analysis of I/O performance is based on the default assumption that the
average read time for one database block is 5000 micro-seconds.

Wait class "Administrative" was not consuming significant database time.
Wait class "Application" was not consuming significant database time.
Wait class "Cluster" was not consuming significant database time.
Wait class "Commit" was not consuming significant database time.
Wait class "Configuration" was not consuming significant database time.
CPU was not a bottleneck for the instance.
Wait class "Network" was not consuming significant database time.
Wait class "Scheduler" was not consuming significant database time.
Wait class "Other" was not consuming significant database time.
Wait class "User I/O" was not consuming significant database time.

The flushing of snapshots 9 and 10 took 47 seconds which is 25% of the
analysis period time. This may reduce the reliability of the ADDM analysis.

Fig. 7B

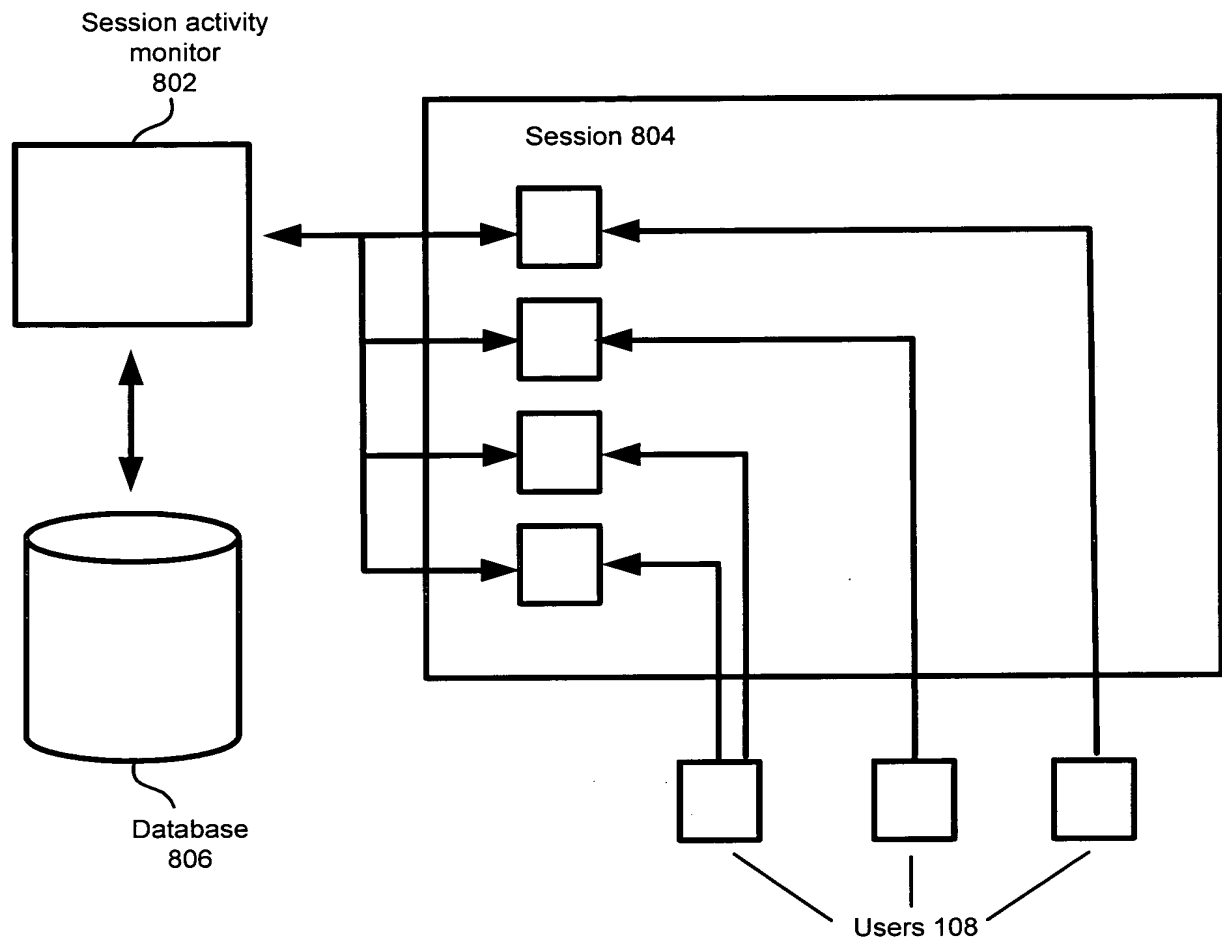


Fig. 8

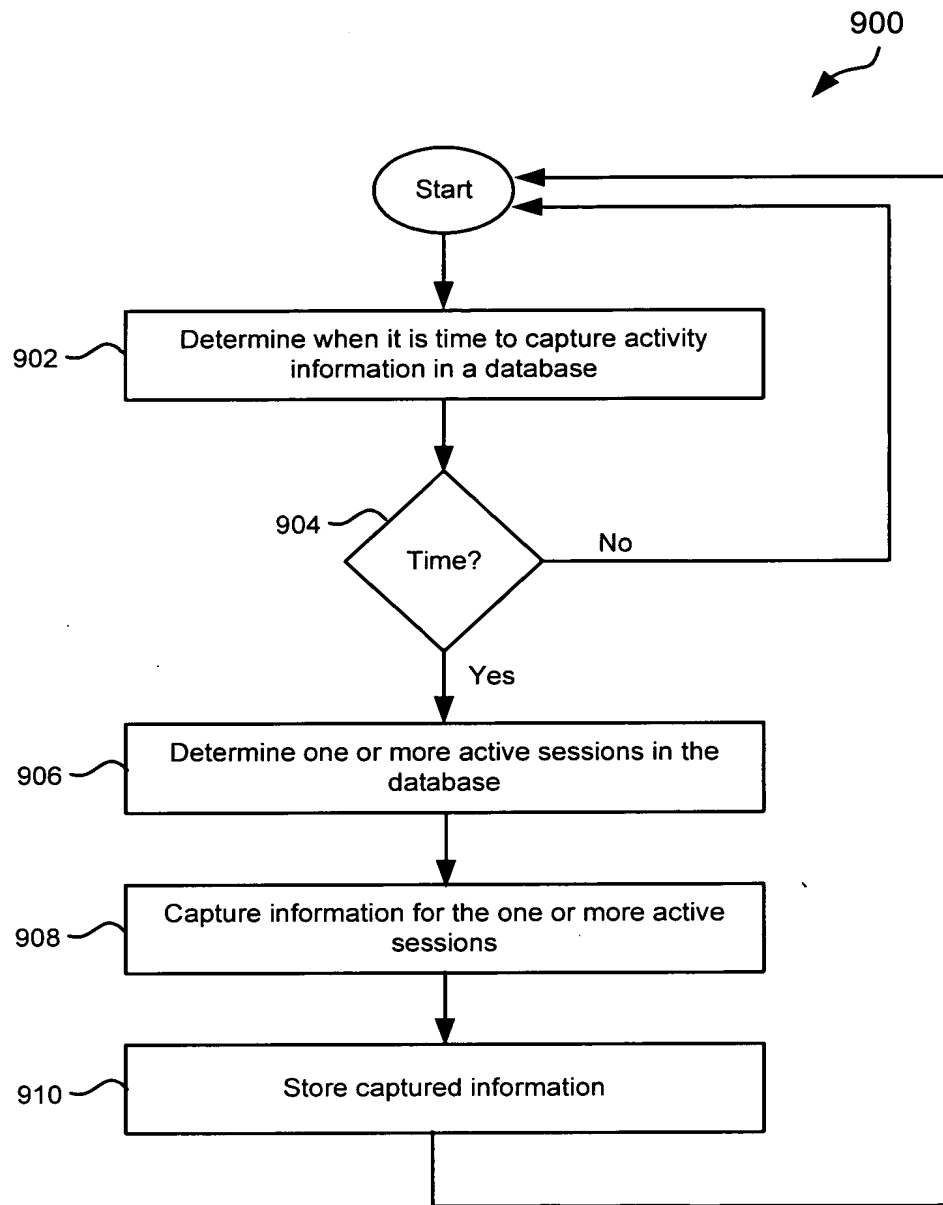


Fig. 9

Active Session History

Design Overview

S	ASH session sampler. Samples active sessions once every second and writes into the in-memory circular buffer.
V	V\$ view defined to access the in-memory circular buffer returning the latest samples first and indexed on time.
F	ASH Flusher that filters and flushes the in-memory session samples once every 30 minutes or whenever there is a space pressure.
D	DBA_HIST_view on the on-disk session samples. Also indexed on time.

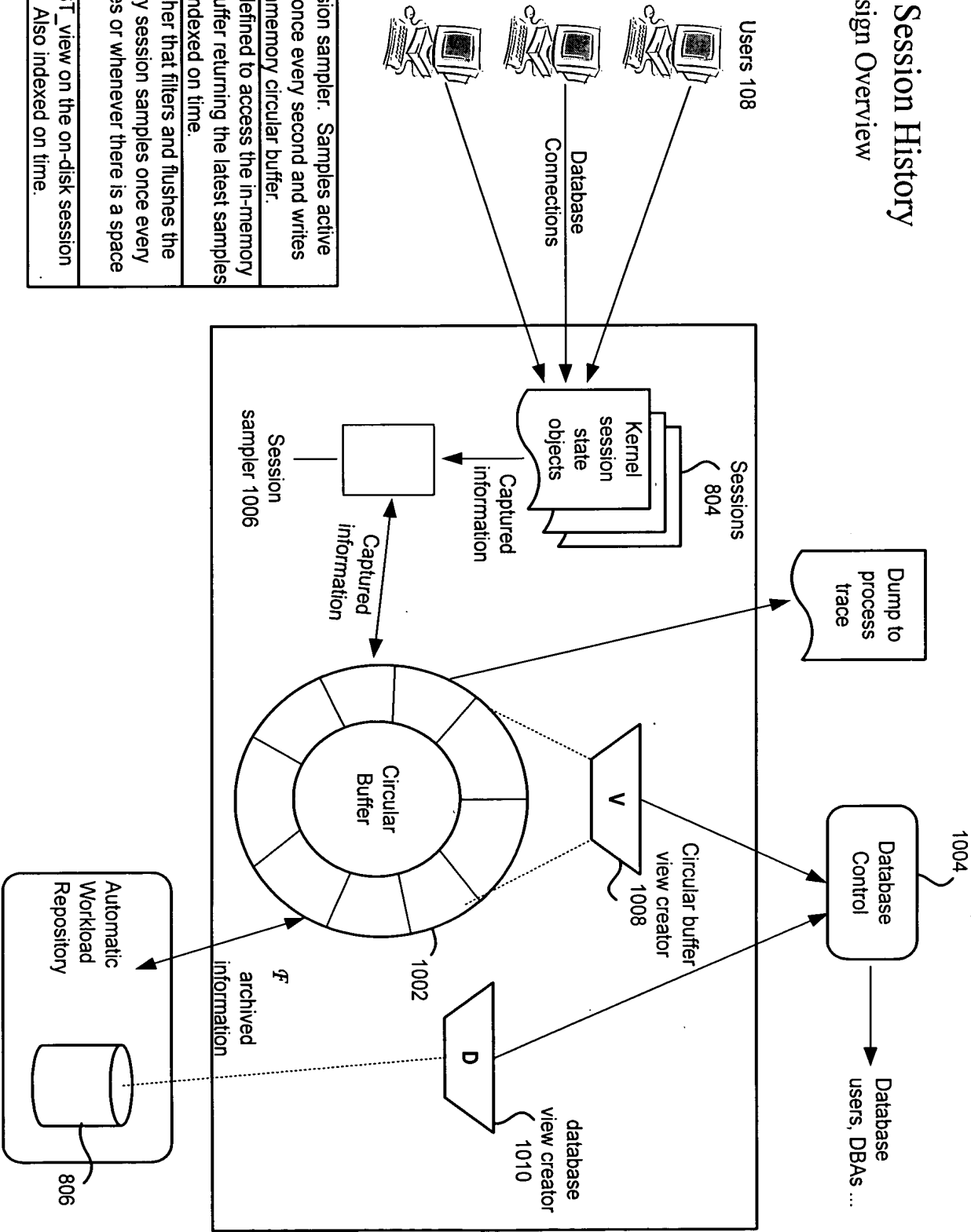


Fig. 10

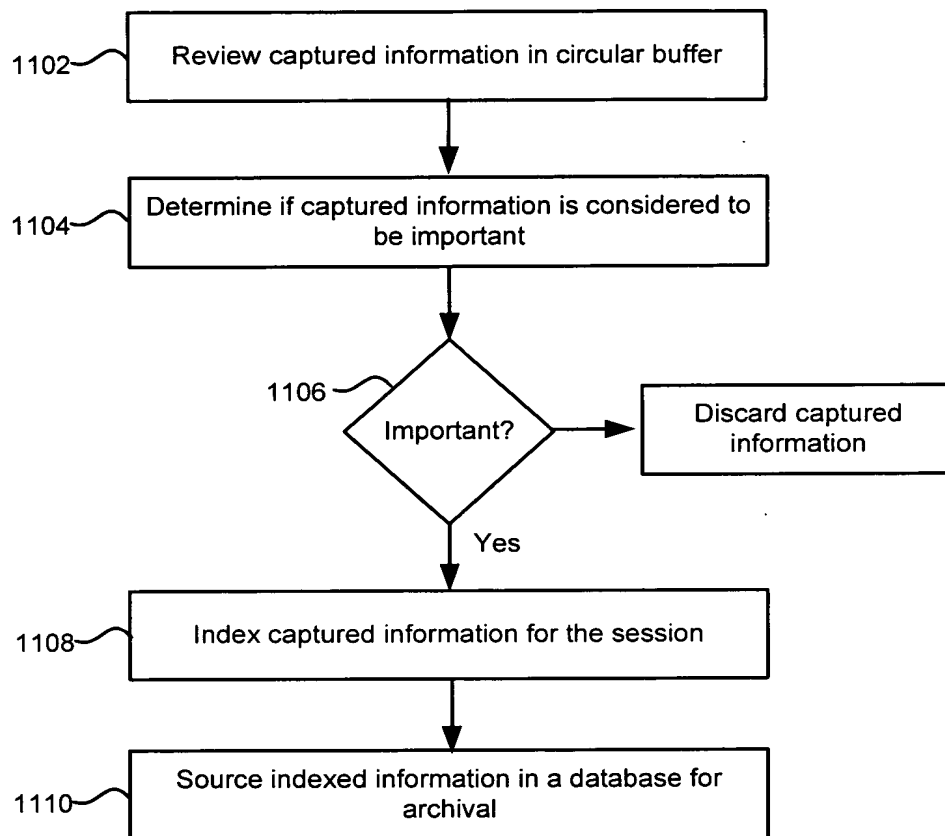
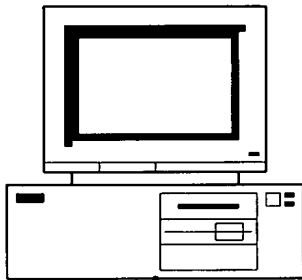
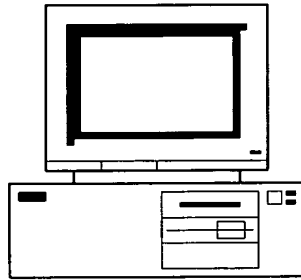


Fig. 11

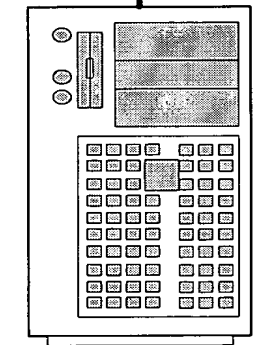
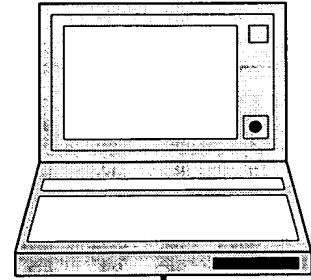
1205
USER COMPUTER



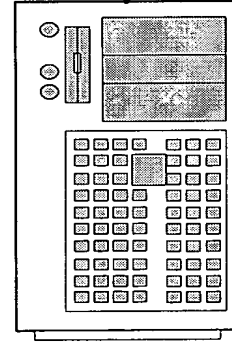
1210
USER COMPUTER



1215
USER COMPUTER



1225
WEB SERVER



1230
WEB APPLICATION SERVER

1200

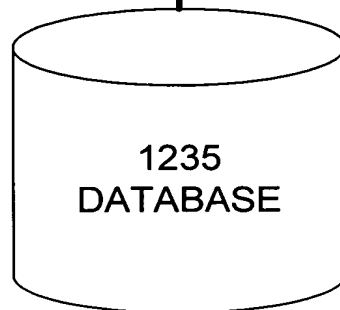


FIG. 12